CLAS12 Soldering: required clamping pressure

– Engineering Note –

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After repeated tests on the applied pressure utilizing two C clamps per each soldering block it was experimentally verified that the variance on the applied pressure utilizing the technique described in the Operating Procedure (OP-464168) is limited and tolerable.

The C clamp are placed on the top side of the coil in contact with the soldering block, while on the bottom side in contact with a 2-4 wood piece to protect the coil by evenly distributing the load.

It is required that the technician performing the soldering activity first snug-tight each of the two C clamp placed onto the soldering block.

The C clamps shall be placed alternatively upside-up and upside-down in order to allow for proper tightening.

Once each of the clamp is snug-tight increase the load by approximately 3/4 of a turn of the lever per each C clamp. This results in adequate pressure applied from the heating block to the copper.

On occasion after 3/4 of a turn of the C clamp lever the operator may notice that the force required for the tightening operation is well below normal. In these cases the C clamp has not been properly placed in the vertical position and the operation shall be restarted anew.

During our test we also verified that it is better to be faulty in the direction of too much pressure than too little pressure, where the former (with the thin layer of flux properly applied onto the surfaces) provides full coverage of the solder into the copper sheets and copper tube with limited solder addition. This produces the desirable strong bond of the soldering joint.

References

[1] L. Elementi, *CLAS12 Soldering After Potting*